

AROUND THE LAB



Laser institute ignites academic collaborations

Editor’s note: This is the fourth article in an ongoing series on the Lab’s research institutes. Today’s article looks at the Institute for Laser Science and Applications.

By Elizabeth Campos Rajs
NEWSLINE STAFF WRITER

Although it is only five years old, the Lab’s Institute for Laser Science and Applications is a fast-rising star in the physics world.

A collaborative project with the Stanford Linear Accelerator Collider on the demonstration of a plasma lens for GeV electrons and positrons was recently hailed in “Physics News in 2000” as one of last year’s top breakthroughs.

The research, led at Livermore by ILSA director Hector Baldis, with the participation of V Division of the Physics and Advanced Technologies Directorate, was presented at the November American Physical Society’s Division of Plasma Physics meeting in Quebec.

“We have a very successful program with SLAC,” Baldis said.

In the last two years, ILSA-sponsored researchers have published more than 58 papers and presented more than 98 papers at various conferences.

And judging by the institute’s missions, ILSA shows no signs of slowing down. ILSA’s main thrust is to “strengthen the research interactions between LLNL and the academic community in the field of high-power lasers and their applications.”

Founded in 1996, the institute is one of the University Relations Program’s five institutes, which together form a centerpiece of the Lab’s research collaborations with universities. The other institutes are the Institute for Scientific Computing Research, the Center for Accelerator Mass Spectrometry, the Materials Research Institute and the Institute for Geophysics and Planetary Physics.

“ILSA has a very important role to play in training the next generation of young scientists who will be doing experiments on NIF,” said Harry Radousky, acting director of the University Relations Program.

Baldis, who is the founding director, initially came to the Lab in 1991, left two years later to work in France at the Ecole Polytechnique, and subsequently returned to the Lab in 1996 to launch the newly formed institute.



Hector Baldis

JOSEPH MARTINEZ/TID

“The challenge of forming something from scratch and the opportunity to work closely with universities was very appealing,” Baldis said. “All of my career had been in government in Canada, Livermore and France. I am looking forward to working in collaboration with the academic community.”

“We want to develop bridges within the Lab to help get people in different directorates together,” Baldis added.

The institute currently is sponsoring eight collaborative research projects with UC campuses through the University Collaborative Research Program. It also is involved in joint research projects with universities across the country, including the University of Texas, the University of Colorado, MIT, UCLA and the University of Rochester.

Present areas of scientific research include laser plasma interaction physics, X-ray lasers and applications, ultra-short pulse interaction physics and laser science and development.

“As part of the development of novel X-ray sources, we are starting a program on their application to protein crystallography, as a multiple directorate project,” Baldis said.

The research focus is on laser applications, Baldis explained, with a particular emphasis on plasma physics. Although plasmas — the fourth state of matter — have existed in laboratories for more than 100 years, “lasers give you the ability to generate plasmas of very unique characteristics,” Baldis explained.

With the world’s largest laser now under construction, the institute is focusing more attention on attracting and training the next generation of plasma physicists to the Lab.

There will be a need for researchers with expertise on different areas of plasma physics, high-energy density physics, advanced plasma diagnostics as well as laser technologies.

In addition to the collaborative research projects and opportunities the institute sponsors to bring postdocs and graduate students to the Lab, one of its best recruiting tools is Baldis himself. He serves as the director of the institute half time and spends the other half as a professor of laser plasma physics at UC Davis.

“As a professor at UC Davis, I see all the students applying to the graduate program. If their interest is in plasma physics, I approach them and try to find them a Lab adviser,” Baldis said. “A high priority for the institute is to recruit students to the Lab.”

“In my role of professor, I’m enjoying the opportunity to teach graduate and undergraduate courses.”

The institute currently has three postdocs working at the Lab and is in the process of hiring two more. It also sponsors between six and 12 students to work at the Lab during the year.

“The purpose of the institute is to bring to the Lab and help train the people who will be required when NIF comes on line,” Baldis said. “We attract to the Lab the future brains who will work on NIF. We attract students, hire postdocs and bring scientists in from universities. In those areas, we have been very successful.”

“Eighty percent of the postdocs we hire have ended up becoming Lab employees,” Baldis noted. “We have a good track record.”

As part of its educational outreach mission, the institute also organizes workshops on a regular basis,

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New policy for using non-government-owned computers at LLNL



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UPDATE

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must take into consideration the possible presence of non-government-owned equipment on site.

Non-government-owned computers that are capable of being connected to Laboratory equipment create an opportunity for bypassing many of the Lab’s computer security protections. As a result, the Lab must protect itself from the possibility that malicious code (for example, viruses) could be introduced into LLNL networks or that unauthorized persons could gain access to sensitive information. This policy establishes a system of approvals to prevent those possibilities.

Other policies, including those referenced below, may also apply to the use of these computers. A Controlled Items Permit, obtained through Safeguards and Security, is required when non-government-owned computers are brought in to limited or exclusion areas.

With the increasing portability of business-related computers and other privately owned electronic devices, protection strategies for Laboratory computing resources

The following rules apply to the use of non-government-owned computers in the various areas of the Laboratory.

Stand-alone non-government-owned computers:

- Permitted in open areas without restrictions.
- Permitted in property protection areas, but organizations within those areas may impose approval requirements in specific buildings. Contact the cognizant OISSO for details.
- Permitted in limited or exclusion areas only with prior notification and approval obtained through the OISSO of the organization controlling a particular area. (Some areas may require a risk assessment conducted by the OISSO.)

Non-government-owned computers connected to an institutional network:

- Permitted in restricted (yellow) networks only with approval from the cognizant OISSO after a required risk assessment (using form F-2026).
- Permitted in unrestricted (green/llnl.gov) networks or visitor (green/ucllnl.org) networks only with an approved connectivity plan (as per policy P-2017).

Non-government-owned computers connected to other (non-network) DOE equipment:

- Involves sensitive information:
Permitted only with approval from the cognizant OISSO after a required risk assessment (using form F-2026).
- Does not involve sensitive information:
Permitted only with approval from appropriate personnel local to where computer will be used.
- Modem use:
Permitted only if consistent with LLNL modem policy (P-2013).

Implementing the policy

Anyone intending to use non-government-owned equipment on site must plan ahead by contacting the appropriate on-site personnel to get required approvals prior to bringing equipment on site. Any use of LLNL communications resources must be made with the understanding that such use is generally not secure, not private, and not anonymous.

David Cooper is associate director for Computation as well as LLNL’s Chief Information Officer.

NEWS OF NOTE



Low-cost fuel for vanpool drivers

Beginning March 12, registered vanpool drivers will be able to purchase gas for their vans at the Lab's fuel station, taking advantage of the reduced fuel costs the Lab gets because of its bulk buying power.

The new fuel incentive program, called "Fill'er Up with Gas for Less," is co-sponsored by Fleet Management's Transportation Systems Management Program (TSMP) and the Laboratory Employee Services Association (LLESA).

Until now, only government-owned vehicles could be fueled at the stations, which are located behind Bldg. 611.

"The goal is to reward existing vanpoolers and to provide an incentive for employees to form new vanpools," says D'Anne Miller, TSMP program manager.

The DOE Oakland Operations Office Return on Investment (ROI) Program provided the seed funding for this emissions reduction incentive program.

"It is important for DOE to take a leadership role at LLNL for emissions reduction, considering the growing number of vehicles in the valley and the direct effect on the surrounding air quality," said

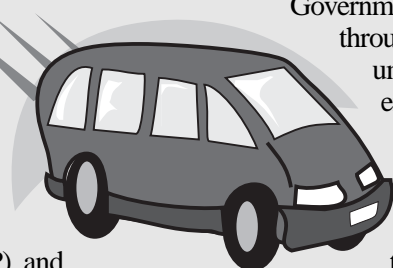
Karin King of DOE/OAK's pollution prevention program. "In addition, this program supports the president's executive order on 'Greening the Government' by encouraging efficient commuting through the use of vanpools, reducing petroleum consumption, and ensuring a healthier environment."

Effective March 12, vanpool drivers who register with TSMP and receive a windshield sticker, can use their personal debit card from any bank to purchase regular unleaded (87 octane) gasoline for their commute vans at the Bldg. 611 fueling station.

According to Fleet Manager Sal Ruiz, "The price per gallon of gas varies with each delivery (approximately every two weeks), therefore; the price for the day will be posted at the pumps."

LLESA is partnering in this project by providing financial expertise to Fleet and TSMP and processing credit card transactions. After six months, the pilot program will be evaluated for long-term implementation.

Eligible vanpools must have the capacity for at least seven riders (including the driver) and must register with TSMP. For more information about the program, call TSMP at 2-RIDE. To fill out an application, go to <http://www-r.llnl.gov/tsmp/fill-up.html>



SECURITY REMINDERS

Conversion of Bldg. 311 turnstile

The exit-only turnstile located on the sidewalk at the southeast side of Bldg. 311 will be converted to a two-way electronic turnstile beginning March 15. The vouching booth will remain in operation, but will be temporarily out of service for upgrades once the two-way turnstile is installed.

Persons entering and exiting the limited area should use the turnstile while the booth is not operating. Use of the new turnstile will require a badge read and PIN entry when entering the limited area, and push button for exit from the limited area.

Questions regarding this conversion should be directed to the Safeguards & Security Department, Physical & Technical Security Group, 2-9191.

New Security Awareness coordinator

Kent Oelrich is the new Safeguards & Security Department Security Awareness coordinator. Oelrich is responsible for the development and preparation of the initial, comprehensive, refresher, termination, and site-specific security briefings for LLNL employees.

These briefings are to ensure employees are familiar with all applicable safeguards and security directives and procedures and other matters of security interest, such as recent espionage cases, approaches and recruiting techniques employed by foreign intelligence services, and safeguards and security threats or vulnerabilities. Oelrich replaces Laurie Whitsel, who retired from the Laboratory on March 1.

Questions pertaining to security awareness can be directed to Oelrich at 3-3300.

Expanding Your Horizons needs volunteers

Volunteer help is still needed tomorrow at the Tri-Valley Expanding Your Horizons Conference, which is held at the Pacific Bell Administrative Center in San Ramon.

The conference runs from 8 a.m. to 4:30 p.m. Saturday, and the set-up begins at 7 a.m. Any amount of help would be appreciated. If you work all day, lunch will be provided. To volunteer, contact Evelyn

Fearon, 3-1817 or fearon2@llnl.gov

This career conference for sixth through 12th grade girls offers hands-on workshops in math- and science-related careers. Its purpose is to foster awareness of career opportunities in the math and science fields and to provide young women with the opportunity to meet and interact with positive role models who are active in those careers.

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such as the fourth International Workshop on Laser-Plasma Interaction Physics held in February in Banff, Canada. The workshop was co-sponsored by the University of Alberta, Edmonton.

The institute hosts training sessions and organizational seminars on a regular basis and is now in the process of exploring whether a master's program in optical or laser sciences can be offered through the UC Davis Department of Applied Science for Lab employees.

ILSA recently issued its call for proposals, all of which will be peer reviewed. Baldis expects to award \$250,000 to projects proposed jointly by a Lab principal investigator and a university researcher.

"The project has to be excellent science, it has to be a strong and meaningful collaboration between the Laboratory and the campus and there has to be a student involved," he explained. "We want the project to have relevance to the Lab."

In addition to its educational outreach and collaborative research, the institute also facilitates the use of Lab equipment by university researchers.

ILSA is also part of the newly formed Physics and Advanced Technologies Directorate. Baldis said he is working closely with PAT's principal deputy AD Bill Goldstein to strengthen the ILSA.

"We are working with PAT to develop a program to bring professors in to use lasers at the Lab," Baldis said. "We have a strong collaboration with the University of Rochester, which now has the most powerful laser in the country, and it will be that way until NIF comes on line."

For more information about the ILSA, check out its Website at www.llnl.gov/urp/ILSA



As part of National Engineers Week, the Engineering Directorate hosted hundreds of children from area schools for a lecture on what it's like to be an engineer. The students were then allowed to participate in some hands-on exhibits with various Lab engineers.



Engineering next generation of Lab recruits

PHOTOS BY JOSEPH MARTINEZ/TID

